Chapter 3 The Refuge Environment

Geographic/Ecosystem Setting

The Great Lakes Basin Ecosystem

The U.S. Fish and Wildlife Service has implemented an ecosystem approach to fish and wildlife conservation. Under this approach the Service's goal is to contribute to the effective conservation of natural biological diversity through perpetuation of dynamic, healthy ecosystems by using an interdisciplinary, coordinated strategy to integrate the expertise and resources of all stakeholders.

Wyandotte National Wildlife Refuge lies within the Great Lakes Basin Ecosystem, a system shared with Canada and eight states. The ecosystem is made up of the world's largest freshwater body, which holds 18 percent of the world's supply of freshwater, covers 95,000 square miles, has 9,000 miles of shoreline, over 5,000 tributaries, and a drainage basin of 288,000 square miles. A refuge land status map is included on page 9 and a map showing vegetation types follows on page 10.

Biological concerns within the ecosystem include the impact of exotic species, the precarious nature of the aquatic community structure, and contaminant levels. Various fish and wildlife activities, drinking water, recreation, hydropower production, industrial waste supply, waste disposal, and commercial navigation affect the natural resources in the ecosystem. The basin contains critical breeding, feeding, and resting areas as well as migration corridors for waterfowl, colonial nesting birds, non-game birds, and many species of migratory birds.

Within the Great Lakes basin certain species have drawn special concern. Fish species of special interest include lake trout, lake sturgeon, lake whitefish, walleye, Pacific salmon, and landlocked Atlantic salmon and their forage. There is a concern for native mussels because they are being seriously impacted by zebra mussels and are in danger of extirpation from the Great Lakes Basin. Thirty-one species of migratory non-game birds of management concern to the Service are found in the Great Lakes ecosystem.

A recent survey of biological diversity in the basin identified 130 globally rare or endangered plant and animal species. The bald eagle, peregrine falcon, Kirtland's warbler, piping plover, Mitchell's satyr blue butterfly, Indiana bat, gray wolf, lake sturgeon, deepwater sculpin, and supnose shiner are some of the threatened, endangered, and candidate species that inhabit the Great Lakes ecosystem. The bald eagle and lake sturgeon have been observed at Wyandotte National Wildlife Refuge. The Great Lakes Basin Ecosystem is divided into seven focus areas. The Lower Detroit River focus area contains the Wyandotte National Wildlife Refuge. The Refuge is also within the St. Clair/Detroit River focus area identified by the Midwest Natural Resources Group, which consists of 14 Federal agency partners.

The Detroit River[1]

The U.S. Environmental Protection Agency and Environment Canada have identified the Detroit River as a portion of the Great Lakes shoreline with significant concentrations of coastal wetlands and distinctive characteristics (U.S. Environmental Protection Agency and Environment Canada, 1999). In 1990, Region 3 designated the marshes associated with Lake Erie and the Detroit River as a wetland focus area within the *Regional Wetlands Concept Plan*.

The Detroit River consists of a 32-mile-long channel bordered by a poorly drained clay lake plain. The rapidly flowing river is underlain by limestone bedrock. Heavy industrial development dominates the shoreline. The River has 66 miles of Canadian shoreline, 79 miles of U.S. shoreline, five Canadian wetlands with 2,808 acres, and 16 U.S. wetlands with 3,415 acres. The wetlands are principally of two types: (1) channel-side (fringing) wetlands with mineral and organic soils and (2) submergent beds of vegetation with mineral soil, cobble, and limestone bedrock. The submergent beds, which once characterized large portions of the river, have been degraded, and the fringing emergent marsh has been almost completely destroyed. At one time extensive wild celery beds were important for diving ducks. After a decline in the beds from the 1950s to the 1970s, it appears that the beds are recovering and may be at the levels that existed in the 1950s.

Figure 3: Historic Spawning Areas

The Detroit River wetlands provide spawning areas for 26 percent of the fish species in the Great Lakes and nursery areas for 20 percent of the species. Compared with other shoreline reaches in the Great Lakes, the Detroit River is above the 50th percentile for providing spawning and above the 75th percentile for nursery areas. One hundred species of breeding birds (approximately 50 percent of the breeding birds of Ontario) use the Detroit River wetlands along the Canadian shoreline. We expect equivalent bird use in the U. S. wetlands.

In their evaluation of the importance of the Detroit River wetlands, the EPA and Environment Canada noted that although the wetlands are important for a large number of plant and animal species, the number of rare species in coastal wetlands is very low. In valuing the various shoreline reaches, the agencies weighed the distribution, size, uniqueness, and quality of wetlands. They acknowledged the general perception that the Detroit River's large submergent vegetation beds provide important habitat for migrating waterfowl and nursery areas for fish. However, they identified the wetlands along the Detroit River as deserving high priority not only because they serve as important habitat for a large number of fish and bird species, but especially because there are so few wetlands remaining in the area.

[1] Primary source material for this section is U.S. Environmental Protection Agency and Environment Canada, 1999.

Figure 4: Refuge Land Status Map

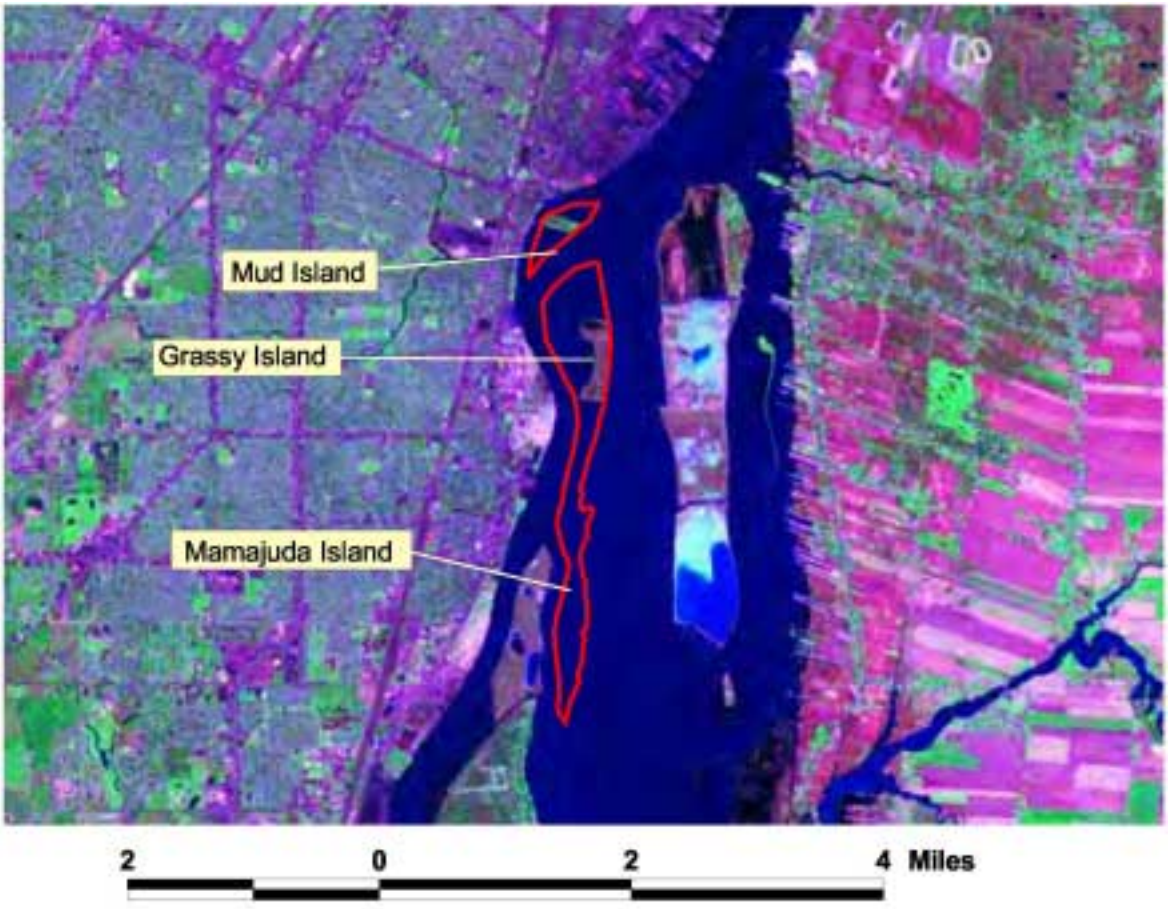
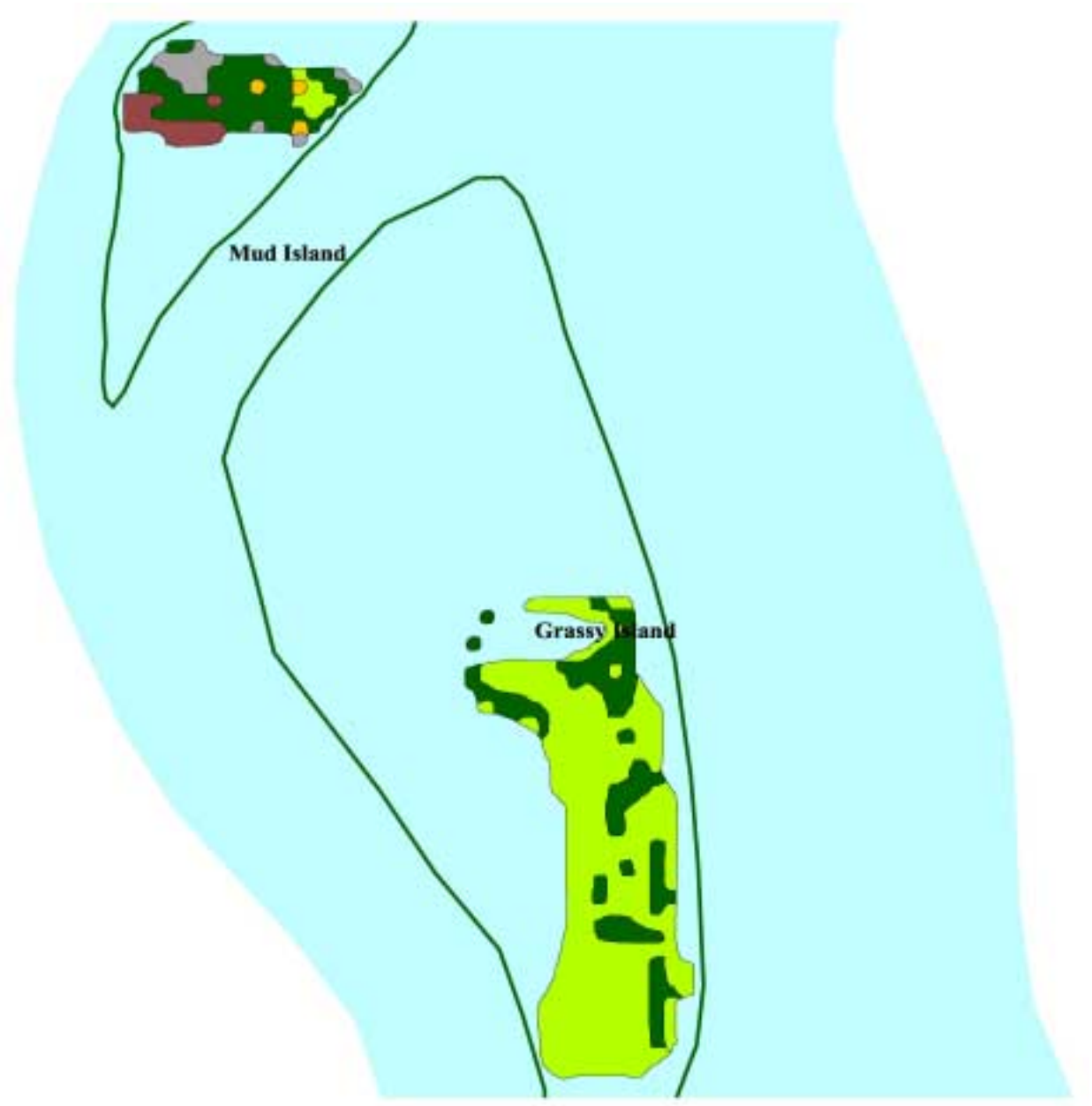


Figure 5: Vegetation Types



Land Cover Data Set	Grassy Island (Acres)	Mud Island (Acres)
Developed (Non-residential)		3.4
Deciduous Forest	15.8	11.0
Urban Grasses		0.7
Woody Wetland		3.6
Emergent Herbaceous Wetland	55.0	1.4

The land cover for Mud and Grassy Islands was developed from the Michigan Land Cover Data Set produced by the Multi-resolution Land Characterization (MRLC) Consortium. The Michigan Land Cover Data Set is part of the National Land Cover Dataset which was compiled from Landsat satellite TM imagery (circa 1992) with a spatial resolution of 30 meters. The NLCD classification contains 21 different land cover categories with a spatial resolution of 30 meters

Challenges to wetlands along the Detroit River include:

- Wetland loss from dredging, filling, and urban and industrial development.
- Contamination by phosphates, heavy metals, oils, and PCBs, especially along the U.S. shoreline.
- Vulnerability to invasive exotic species of plants, fish, and invertebrates
- Many marshes are diked with accompanying problems of being isolated from the river.

Based on the Great Lakes Water Quality Agreement, the Government of Canada and the U.S. Environmental Protection Agency (1995) have listed concerns for the Detroit River. They report the following concerns: degradation of benthic populations; fish tumors and other deformities; restrictions on fish and wildlife consumption; beach closings due to bacteria in the water; restrictions on dredging; taste and odor in drinking water; degradation of aesthetics; and fish and wildlife habitat.

American Heritage River

The Detroit River was designated as an American Heritage River in 1998. The American Heritage Rivers Initiative is a Federal effort to support the local community's goals for the river by cutting red tape and providing focused Federal support. It is a locally driven program. In Detroit, the private and municipal sectors are the primary forces within the steering committee. Late in 1999, a Federal contact was named for the river and stakeholders held their first major event.

Migratory Bird Conservation Initiatives

Nongame Bird Conservation Initiatives

Nationally and internationally, several nongame bird initiatives have been developed in recent years. Wyandotte National Wildlife Refuge will strive to implement the conservation strategies they outline to the extent possible and practical.

Partners In Flight (PIF) deals primarily with landbirds and has developed Bird Conservation Plans for numerous physiographic areas across the U. S. (see http://www.partnersinflight.org). These plans include priority species lists, associated habitats, and management strategies. Wyandotte National Wildlife Refuge lies within Partners in Flight Physiographic Area No. 16, Upper Great Lakes Plain. Species priorities for this area can be found at http://www.cbobirds.org/pif/physios/16.html.

The U. S. Shorebird Conservation Plan (see http://www.manomet.org/USSCP.htm) and the North American Waterbird Conservation Plan (see http://www.nacwcp.org) have regional components that identify priority species and conservation strategies, mostly focused around habitat, that will address the needs of these groups of birds.

All migratory bird conservation programs will be integrated under the umbrella of the North American Bird Conservation Initiative (NABCI). This is a conti-

nental effort to have all bird initiatives operate under common Bird Conservation Regions and to consider the conservation objectives of all birds together to optimize the effectiveness of management strategies (see http://www.dodpif.org/nabci/index.htm). The goal of NABCI is to facilitate the delivery of the full spectrum of bird conservation through regionally-based, biologically-driven, landscape-oriented partnerships.

North American Waterfowl Management Plan

The North American Waterfowl Management Plan (NAWMP), signed in 1986, outlines a broad framework for waterfowl management strategies and conservation efforts in the United States, Canada, and Mexico. The goal of the NAWMP is to restore waterfowl populations to historic levels. The NAWMP is designed to reach its objectives through key joint venture areas, species joint ventures, and state implementation plans within these joint ventures.

The entire State of Michigan is within the Upper Mississippi River and Great Lakes Region Joint Venture. Areas within Michigan have substantial use by waterfowl during migration, particularly the coastal waters and marshes of Saginaw Bay, the Lake St. Clair and Erie complex, and the eastern Upper Peninsula along the St. Mary's River and northern Lake Huron. However, emphasis for Michigan in the Joint Venture is waterfowl reproduction and the maintenance of healthy populations of other resident wetland wildlife.

Greatest potential to increase Michigan wetland wildlife populations exists on relatively productive lake plain landscapes where agricultural practices have eliminated or significantly altered wetlands and associated uplands. The Michigan implementation strategy emphasizes waterfowl reproduction and does not include migration habitat objectives (1998).

Figure 6: USFWS Region 3

Region 3 Fish & Wildlife Resource Conservation Priorities

The Government Performance and Results Act (GPRA) required the U.S. Fish and Wildlife Service to identify its most important functions and to direct its limited fiscal resources toward those functions. From 1997 to 1999 within Region 3 (Figure 6), a group looked at how best to identify the most important functions of the Service within the region. The group recognized that the Service has a complex array of responsibilities specified by treaties, laws, executive orders, and judicial opinions that dwarf the agency's budget.

The group recognized that at least two approaches are possible in identifying conservation priorities - habitats and species. The group chose to focus on species because (1) species represent biological and genetic resources that cannot be replaced; (2) a focus on species conservation requires a concurrent focus on habitat; and (3) by focusing on species assemblages and identifying areas where

ecological needs come together the Service can select the few key places where limited efforts will have the greatest impact. Representatives of the migratory bird, endangered species, and fisheries programs in Region 3 identified the species that require the utmost attention given our current level of knowledge. Representatives prioritized the species based on biological status (endangered or threatened, for example), rare or declining levels, recreational or economic value, or "nuisance" level. The group pointed out that species not on the prioritized list are important too. But, when faced with the needs of several species, the Service should emphasize the species on the priority list.

We have considered the American Heritage River Initiative, the ecosystem context, state-listed species, and the regional resource conservation priorities as we wrote this comprehensive conservation plan.

Refuge Resources, Cultural Values and Uses[2]

History of the Refuge

Grassy Island appears as a 6-acre marshy area on 1796 maps of the Detroit River. At that time, the river bottom around the island sloped gradually off on all sides into deeper channels. The area was called "Ile Marecageuse" on the 1796 map and "Grassy Island" on later maps. An 1873 fisheries report contains a line drawing of the "Grassy Island Pond Fishery" for spawning whitefish. The drawing depicts a large seine being drawn in by horse-drawn windlasses and several sheds on the island. The fishery employed 30 men, working night and day, September to November and produced 45,000 adult whitefish per spawning season.

Photo courtesy of NOAA National Marine Fisheries Service

An executive order in 1843 reserved the islands for lighthouse purposes, and navigation lights have been on the islands for years. In 1955, Grassy Island was under the jurisdiction of the U.S. Treasury Department, which had reserved it for installation of navigation aids by the U.S. Coast Guard. In September 1959, the U.S. Army Corps of Engineers (ACOE) began diking a 300-acre area around Grassy Island for disposal of polluted dredge spoils from the Rouge River. In October 1959, at a meeting between the ACOE, the U.S. Bureau of Sport Fisheries and Wildlife, and the Michigan Department of Conservation, Congressman John D. Dingell negotiated an agreement that the ACOE could continue construction of the Grassy Island Confined Disposal Facility (CDF).

In January 1960, Mr. Dingell introduced legislation to designate Grassy Island and surrounding shoals as a national wildlife refuge because wild celery (*Vallisneria americana*) was abundant and widely distributed near Grassy Island, and wild celery is the preferred food of diving ducks, such as canvasbacks, redheads, and scaup. The area was known to attract thousands of diving ducks

[2] Unless specifically noted, Manny's 1999 summary is the source for the material in this section.

during their fall and spring migration. In July 1960, the Department of Interior agreed that if it received jurisdiction over the Grassy Island area, it would not object to the ACOE's continued use of a 72-acre CDF for dredge spoils from the Rouge River. The act to create the Wyandotte National Wildlife Refuge became law on August 3, 1961. The Refuge included Grassy Island and surrounding shoals out to a water depth of 6 feet and an area of about 300 acres extending downstream to the Mamajuda Light near Point Hennepin. The Refuge is administered by the Shiawassee National Wildlife Refuge near Saginaw, Michigan.

General

Wyandotte National Wildlife Refuge was originally a marshy, low-lying area of emergent and submersed vegetation that might be classified today as a Great Lakes coastal marsh. On an 1815 map, such marshes were contiguous along both sides of the entire 32-mile length of the Detroit River. By 1982, shoreline development had reduced the marshes to less than 3 percent of its original area along the Michigan side of the river. Today, only remnants of that marsh, such as Humbug Marsh and portions of Stony Island and Gilbraltar Bay at the southern end of Grosse Ile, remain in Michigan waters of the river. These remnants contain stands of bottomland hardwoods, glacial lakeplain prairie, coastal plain pond communities, and a variety of wetland types. Such coastal marshes are used as spawning, nursery, feeding, migration, overwintering, and habitat by many of the 47 species of fish that spawn in the lower Detroit River, including northern pike, muskellunge, largemouth and smallmouth bass, walleye, and possibly lake sturgeon. More than 17 species of birds of prey, or raptors, use coastal marshes as feeding and resting habitat, including eagles, hawks, owls, and falcons. In addition, coastal marshes are used by 48 species of non-raptors that migrate through the Detroit River area each year, including waterfowl, loons, herons, egrets, terns, and neotropical songbirds.

Comparison of Detroit River maps drawn in 1815 and 1982 reveals that:

- More than 97 percent of wetlands in Michigan waters have disappeared under shoreline modifications.
- Ninety percent of the remnant wetlands in the Detroit River are found downstream of Grassy Island.
- About 40 percent of these remnant wetlands are in Humbug Marsh and on small, undeveloped islands forming the "Conservation Crescent"" around the southern tip of Grosse Ile.

Because wetland habitats are essential to a high diversity of fish and wildlife species at various stages of their life cycle, such Great Lakes coastal marshes have been classified as globally unique and significant in biological diversity by The Nature Conservancy.

Vegetation

At least 20 species of submersed aquatic macrophytes occur in the Detroit River: wild celery (*Vallisneria americana*), water stargrass (*Heteranthera dubia*), waterweed (*Elodea canadensis*), Eurasian watermilfoil (*Myriophyllum spicatum*), bushy pondweed (*Najas flexilis*) and redhead grass (*Potamogeton richardsonii*) predominate in the vicinity of Grassy Island.

Shallow water habitat, gradually sloping off into deeper waters, exists only on the west side of Grassy Island in a small 20-acre bay. Historically, wild celery was abundant and widely distributed near Grassy Island and in the Detroit River system. The extent of wild celery was measured in the 1950s, 1980s, and again in 1996-97. There was a 72 percent decline in wild celery from the 1950s to the 1980s. Now, wild celery has rebounded and is at or exceeds the levels of the 1950s. The increase in wild celery is attributed to increased water clarity in Lake St. Clair and the Detroit River. The increased water clarity is attributed primarily to filtration of the water by zebra mussels (Manny, 2000).

Terrestrial plants on Grassy Island include giant reed grass (*Phragmites communis*), cattails (*Typha spp.*), as well as aspen, cottonwood, willow, wild cherry and box elder trees that provide little suitable habitat for animals. Wildlife use of small ponds on Grassy Island has not been fully characterized.

The quality of existing habitats for production of fish and wildlife is low on Grassy Island, due to the monotypic dominance of giant reed grass and exposure to dredged sediments. The quality of habitat on the shoals surrounding Grassy Island is medium, due to contamination of river bottom sediments. The condition of historic fish spawning grounds on the Refuge is unknown.

Approximately 75 percent of Mud Island is forested with more than 20 years growth of deciduous hardwood trees, dominated by red maple, silver maple, white ash, cottonwood and willow. Its surrounding shoals are, on average, 2 feet in depth and support aquatic species such as wild celery.

Fish and Wildlife

Waterfowl

Canvasbacks, common mergansers, and redheads are regularly present in significant numbers along the lower Detroit River during the late fall and winter. A series of waterfowl surveys were conducted by the Michigan Department of Natural Resources in the 1950s. The count-estimates in Table 1 are for an 18-mile segment of the Detroit River from the Ambassador Bridge to the mouth. The Refuge islands and shoals are located in the central part of this segment.

In recent years the Department of Natural Resources has conducted an aerial count of canvasback/diving ducks along the Detroit River in November. The results of the survey are depicted in Table 2.

The Lower Detroit River is designated as an Important Bird Area that is globally significant as a site for congregating waterfowl (http://www.bsc-eoc.org/iba/site.cfm?siteID=ON047&lang=en). On average, more than 8,261 Canvasback (greater than 1 percent of the estimated North American population), and 7,000 common mergansers (greater than 1 percent of the estimated North American population) are recorded each year during the annual Christmas Bird Count centered on Rockwood, Michigan. The population of redheads counted in 1997 was 9,011. Other waterfowl species commonly observed on the river include: greater scaup, lesser scaup, common goldeneye, and bufflehead.

During the November counts conducted by the Department of Natural Resources, few waterfowl are seen in the area around the Refuge. In the fall there

Table 1. Count-estimates from Aerial Surveys of Waterfowl for 18-mile Segment of the Detroit River from the Ambassador Bridge to the Mouth. (Miller, 1961)

Year	Winter	Spring	Pre-season	Fall Mid-season	Post-season
1950	23,400	14,000	12,200	7,700	73,500
1951	28,000	21,900	5,300	56,000	63,500
1952	15,100	21,400	5,000	90,200	91,000
1953	45,000	41,400	4,400	30,000	95,000
1954	44,300	55,000	7,000	293,000	54,000
1955	48,400	70,100	4,500	217,000	24,500
1956	19,900	25,300	6,500	43,700	38,500
1957	51,300	41,600	4,850	17,500	41,050
1958	37,300	*	*	29,700	*
1959	86,400	*	*	7,550	*
1960	38,260	*	*	5,470	*
1961	10,300	*	*	*	*

* Census discontinued

appears to be more waterfowl activity in the south end of the River, south of Grosse Ille. In the fall the birds may be moved from the area because of hunting pressure and other activity. However, there is a good deal of hunting activity and success at the Canard River Refuge, which is across the river from the Wyandotte National Wildlife Refuge. In the winter, the waterfowl seem to spread out more widely along the Detroit River. If waterfowl are seen near the Refuge, they are observed in the small bay west of Grassy Island. Over one recent winter, large rafts of canvasbacks were seen in the bay (Manny, 2000). Heavy river current discourages waterfowl use around other parts of the Refuge (Kafcas, 1999).

On Mud Island, extensive beds of aquatic vegetation, particularly wild celery, historically attracted large concentrations of divers, primarily canvasback and scaup. However, in the past 100 years discharges from industrial plants and municipal sewage effluent along with the effects of large, deep draft vessels have degraded the lower Detroit River ecosystem, thus resulting in the substantial decline of these preferred foods. Remnants of the once vast rafts of migratory waterfowl can still be found in the aquatic vegetative beds surrounding Mud Island.

Fish

Lake sturgeon once spawned on the rocky bottom in swift currents just northeast of Grassy Island, one of seven historic spawning areas in the Detroit River. This fish is listed as “threatened” by 19 of the 20 states in its original range, and by seven of the eight Great Lakes states, including Michigan. Recent, incidental catches of genetically unique, juvenile lake sturgeon in Lake Erie near the Detroit River suggest that sturgeon are reproducing again in the Detroit River. More than 10 million walleye, white bass, steelhead, and salmon migrate through the Detroit River each year and attract many sport fishers to the Refuge.

Table 2: November Waterfowl Survey Results for the Lower Detroit River and Northern Portion of Lake Erie (Kafcas, 2000).

Year	Canvasback	Scaup	Bufflehead	Merganser	Goldeneye	Redhead	Total
1995	11,150	8,000	*	275	*	1,500	20,925
1996	400	675	50	400	75	*	1,600
1997	11,250	14,450	20	50	50	400	26,220
1998	750	10,000	150	515	50	800	12,265
1999	600	16,200	20	560	20	100	17,500

* Not Reported

Other Species

Bald eagles, a federally-listed endangered species, have nested recently near Grassy Island. Pheasant, swallow, red-wing blackbird, gulls, terns, Canada geese, woodcock, wood duck, loon, kingfisher, and many species of shorebirds inhabit the Refuge.

Coyote, gray fox, whitetail deer, raccoon, woodchuck, and muskrat have either been seen or identified by signs they left on Grassy Island. A few years ago, a family of river otter was seen near the lower Detroit River. Beaver have recently returned to nearby Livingston, Oakland, and Washtenaw counties.

Two state-listed threatened species have been associated with Grassy Island. The spotted turtle was recorded in the Michigan Natural Features Inventory in 1997. The common tern was recorded in 1977.

Mud Island supports small mammals including rabbits, voles and mice; herptiles such as garter snakes, northern water snakes, turtles, frogs and toads; and avian species including waterfowl, passerine, wading birds and raptors. Occasionally, an eagle can be seen perched on the island and on one occasion a grey fox was observed on the ice adjacent to Mud Island.

Contaminants

In 1960, the ACOE transformed Grassy Island into an 72-acre Confined Disposal Facility (CDF) consisting of two cells surrounded by dikes. Dredged material was hydraulically pumped as a slurry into the receiving cells and allowed to settle. The resulting water was discharged back into the river via an overflow weir.

Because the Grassy Island CDF preceded Public Law 91-611 (1970), which initiated the Great Lakes-wide CDF program, it lacks the confinement technology employed in later CDF designs. The CDF (the first one built by the ACOE in the Great Lakes) was constructed without liners and caps and with sand and clay dikes unprotected by riprap. The original dikes were raised in the 1960s and the capacity further expanded in 1971. The Detroit District of the ACOE operated and maintained the CDF until it was filled in 1982. In 1985 and 1986, the ACOE repaired and reinforced the dikes adjacent to the navigation channel with filter cloth and riprap to prevent their failure from riverine and navigational forces. Both cells remain uncapped and polluted sediments are exposed over much of the CDF.

The Grassy Island CDF contains no impermeable liner or cap and ponds on it are above river level. Therefore, the potential for leakage of contaminants from the Grassy Island CDF is being evaluated. Pathways for contaminant movement include leakage under the dike and exposure to dredge spoils at the island's surface. The risk to biological resources posed by exposure to contaminants in the river and on the island needs to be assessed, as well.

Most of the 1.9-million-cubic-yard design capacity of the CDF has been used. However, each cell of the CDF contains a small open water pond that attracts waterfowl. Most of the CDF supports a mixture of emergent, scrub-shrub, and forested wetland types, which also attracts a variety of wildlife. The CDF dikes also have attracted a small breeding colony of common terns (*Sterno hirundo*).

In 1987 Beyer and Stafford surveyed nine CDFs throughout the Great Lakes. They found that soils within the vegetated portions of the Grassy Island CDF contained some of the highest levels of PCBs, mercury, and other heavy metals. They also found levels of chlordane, and eight PAH compounds that exceeded criteria for exposure by direct contact. Polychlorinated biphenyls (PCBs) and DDT levels in the flesh of waterfowl and woodcock on the island exceeded USFDA Tolerance Levels. Earthworms associated with this soil showed positive bioaccumulation of several of the heavy metals.

In 1987, the U.S. Fish and Wildlife Service's East Lansing Field Office began to identify and quantify contaminants in the sediments of the two small ponds. They also quantified contaminant residues in birds using all habitats on Grassy Island.

In 1994, the U.S. Department of Interior selected Grassy Island as a demonstration site for hazardous materials management. The goal of the initiative is to demonstrate the ability of Interior bureaus to work together to develop remedial action plans and to field test innovative technologies for cleanup of Interior lands. The objectives are to address concerns about land use requirements, trust responsibilities, environmental protection, and natural resource management, while achieving cleanup goals more rapidly and at less cost than current methods.

In 1997, the U.S. Geological Survey's (USGS) Biological Resources Division investigated contamination of surficial soils on Grassy Island and of wild celery tubers growing on shoals surrounding the island. In the same year the USGS's Water Resources Division and the U.S. Fish and Wildlife Service investigated groundwater movements around the island and contaminants in subterranean soils and water. These studies showed that contamination exists in the surficial soils on the island, there is little contamination of the wild celery tubers, and there is a low level of contaminates in the sediments outside the CDF.

With the designation of the Detroit River as an American Heritage River, the remediation of the contaminants found on Grassy Island could be used as a model to encourage others to remediate contaminated sites found throughout the Detroit River area, including Canada.

Public Use

The demands for recreational use on Wyandotte NWR have been high. There have been proposals to install an Olympic Rowing Course (1963) and a city-

sponsored (Wyandotte) recreational area (1963-1999) on the Refuge. The authorizing legislation for the Refuge permits the Service to cooperate with the City of Wyandotte in providing recreation that is consistent with the primary purpose of the Refuge (See Appendix F). Due to the contaminant issue affecting habitat and wildlife and the potential for a contaminant issue to affect human beings, recreation on the island is not a high priority at this time.

Until 1973, the Refuge was closed to boating, fishing and hunting. The original intent for the Refuge was to provide a sanctuary for waterfowl. The sanctuary was to protect the wild celery beds surrounding the islands from propeller damage and provide a resting and feeding area to waterfowl, which otherwise would be moved out of the celery beds through hunting pressure. Service staff would place buoys out to the 6-foot contour line of the Refuge boundary to warn boaters, anglers, and hunters that the area was off limits to recreational use.

In 1973, the Service decided to discontinue the placement of buoys. Maintenance was a leading factor in this decision. The buoys were put out from September to late November, and many were moved by ice and ultimately lost. The cost of replacing buoys and the staff time needed to place them was deemed to be greater than the benefit received. The Service did receive complaints from waterfowl hunters that the buoys were removed and waterfowl weren't provided the protection that the Refuge was established for, but the Service felt the maintenance of the buoys were too expensive to fund. The Service also felt that because Grassy Island and its shoals were annexed by the City of Wyandotte and the City had an ordinance prohibiting hunting, the no hunting ordinance could be enforced by the City. The City, however, has not routinely enforced the ordinance. Hunting does occur in the sheltered bay on the west side of the island. The hunting may be causing some disturbance to the wildlife and habitat.

Due to the concerns of contaminants found on Grassy Island, no public use is allowed on the island.

Cultural Resources[3]

Responding to the requirement in the law that comprehensive conservation plans will include "the archaeological and cultural values of the planning unit;" the Service contracted for a cultural resources overview study of Shiawassee National Wildlife Refuge and the refuges it administers.

Wyandotte National Wildlife Refuge has one reported site, an abandoned lighthouse. Grassy Island is a "made island with no apparent cultural time depth. Mamajuda Island contains an abandoned lighthouse in ruins. Documentary evidence exists for small scale Indian and Western sites, and the island could have prehistoric sites, but no one has looked.

[3] This section of the CCP derives mostly from the draft report, "Overview Study of Archaeological and Cultural Values on Shiawassee, Michigan Islands, and Wyandotte National Wildlife Refuges in Saginaw, Charlevoix, Alpena, and Wayne Counties, Michigan," by James A. Robertson and others, Commonwealth Cultural Resources Group, Inc., dated May 1999.

As of June 10, 1999, Wayne County had 339 properties on the National Register of Historic Places. These properties, however, are not indicative of sites that may be on the two islands.

The overview study identified a number of research questions. These questions should be considered in future investigations, including identification-inventory surveys.

The overview study identified Indian tribes, historical societies and museums, and other potentially interested parties that should be consulted in the search for and evaluation of cultural properties on the refuges. No evidence exists for the removal of human remains from the Refuge. Early in the planning stage for every undertaking (as defined in 36 CFR Part 800), the Refuge Manager will notify the Regional Historic Preservation Officer so that qualified analysis and evaluation can be completed and consultation initiated as necessary.

In a further refinement of this CCP and to fulfill requirements of Section 14 of the Archaeological Resources Protection Act and Section 110(a)(2) of the National Historic Preservation Act, we expect to write a cultural resources step-down plan for surveying the Refuge to identify archeological resources and for a preservation program.

Special Topics

Coast Guard Memorandum of Understanding

In 1964, the U.S. Coast Guard raised some questions about its rights and privileges on Grassy Island and Mamajuda Island to erect and maintain navigational aids. In a memorandum of understanding, the Service and the U.S. Coast Guard agreed that the Coast Guard has the right and privilege to operate, maintain, and relocate aids to navigation on Grassy and Mamajuda islands, including the right of ingress and egress for servicing the aids (See Appendix F). The Coast Guard has been maintaining and replacing navigational aids on the Refuge throughout the years.

Land Acquisition

In 1994, the Service began to develop Preliminary Project Proposals (PPP) to acquire lands to preserve, restore and manage nationally significant fish and wildlife habitat within the Lake St. Clair/Detroit River system. These waters and lands would have been additions to the Wyandotte National Wildlife Refuge. Two proposals were written. First, we proposed a transfer of the abandoned Nike Site on Grosse Ile from the U.S. EPA to the Service. Second, we proposed the acquisition of certain coastal wetlands found throughout the connecting channel from Lake Huron to Lake Erie. The second proposal included Calf, Round, Stony, Humbug, Sugar, Fox, and Powder islands; Humbug Marsh and associated uplands; and Point Hennepin, which is the former BASF Corporation property. After a Regional Office review, the Service decided not to pursue the proposals for two reasons. First, we wanted a more thorough evaluation of all lands in the area to facilitate a system approach to our goals. Second, because of higher priority projects, including additions to Shiawassee National Wildlife Refuge, the proposals could not be developed with available staff.

Mud Island Addition

On January 5, 2001, then USFWS Director Jamie Rapport Clark approved the expansion of Wyandotte National Wildlife Refuge to include Mud Island, an approximately 18.5-acre island with 71.5 acres of submerged aquatic shoals. Mud Island is located northeast of Wyandotte National Wildlife Refuge near the City of Ecorse, Michigan, in the lower Detroit River system. The island and surrounding shoals were donated to the Service by the National Steel Corporation on June 14, 2001. The Regional Director also signed a categorical exclusion exempting the refuge expansion from documentation normally required under the National Environmental Policy Act.

Mud Island is undeveloped and almost entirely forested with more than 20 years growth of deciduous hardwood, primarily maple, ash and cottonwood. The surrounding shoals are, on average, 2 feet in depth and support aquatic species such as wild celery, a significant food source for some species of duck. A survey of the island did not reveal any evidence of contaminants on the island.

Restoration of the island will contribute toward the Service's ecosystem goals by preserving valuable aquatic shoals for the benefit of migratory waterfowl, particularly diving ducks, and it will provide potential spawning habitat for lake sturgeon.

Detroit River International Wildlife Refuge Proposal

In March 2001, Rep. John Dingell (Michigan District 16) introduced a bill that would establish the Detroit River International Wildlife Refuge. If the bill (H.R. 1230) is approved, Wyandotte National Wildlife Refuge would become part of the new international wildlife refuge.

The Planning Team is pressing forward with the preparation of a comprehensive conservation plan for Wyandotte National Wildlife Refuge pending a decision on the creation of an international refuge. We believe that it is worthwhile to complete this planning process. It is hard to estimate how long it might take Congress to act on H.R. 1230 and, if it is ultimately approved, it will take at least a year to complete the necessary interagency coordination that will help define specifics of the expanded refuge. A process to formally evaluate the expansion of the existing refuge boundaries and the revision of the CCP can then begin. Completing the comprehensive conservation plan now will provide direction for the Refuge for as long as it exists in its present form, and in the future it will contribute direction to planning efforts for an international wildlife refuge.

Wilderness Review

The Refuge does not meet the criteria for Wilderness, because:

- Human influence is substantially noticeable.
- There is not opportunity for solitude.
- We can not restore the wilderness character through appropriate management.
- It does not contain features of unusual scientific, educational, scenic, or historical value.